

REMARKS

The Examiner rejected claims 1, 3-6, 13, 15 and 16 under 35 USC §102(b) as being anticipated by Shida et al. (USPN 3648355).

In Shida et al., a *separate* bonding layer is required for bonding the Pd alloy foil with the base metallic foil. The separate bonding layer is denoted in Shida et al. as intermediate layer 2. In contrast to the procedure disclosed in Shida et al., the applicant's method of bonding a metallic membrane with a metallic part comprises directly physically contacting a smooth surface of the metallic membrane against a smooth surface of the metallic part, *without any intervening layer or material being present between the two contacting surfaces.*

Claim 1 has been amended to specify that there is no intervening material present between the two contacting surfaces of the metallic membrane and the metallic part. It is submitted that amended claim 1 and its dependent claims distinguish Shida et al. under 35 USC §102(b).

The Examiner also rejected claims 1-4, 13, 15 and 16 under 35 USC §102(b) as being anticipated by Stueber et al. (USPN 6464129 B2). Stueber et al. disclose a method of joining superalloy substrates together by depositing an *activator* directly on the surface of the joint to be bonded and thereafter subjecting the joint to heat and pressure.

In the applicant's method, no activator (which can be regarded as an intervening material) is required between the adjoining smooth surfaces of the metallic membrane and the metallic part.

With the above-noted amendments to claim 1, it is submitted that claim 1 and its dependent claims now distinguish the disclosure of Stueber et al. under 35 USC §102(b).

The Examiner also rejected claims 1, 4-7, 9-11, 13, 14 and 16 under 35 USC §102(b) as being anticipated by Langley et al. (USPN 3428476).

Langley et al. disclose a method for forming a non-porous hydrogen-permeable palladium (Pd) alloy film on a *porous ceramic support* wherein a film of Pd dispersed in a vitreous glaze (which is an intervening material) is first deposited on the support, and a thin film of

an alloying metal is deposited on the Pd film and treated to effect interdiffusion of the alloying metal with the Pd.

Langley et al. do not disclose a method of bonding a metallic membrane with a metallic part according to the applicant's method, as now specified in the amendments that have been made to claim 1. Accordingly, it is submitted that claim 1 and its dependent claims distinguish Langley et al. under 35 USC §102(b).

The Examiner also rejected claims 1, 2, 5, 6, 13, 14 and 16 under 35 USC §102(b) as being anticipated by Juda et al. (USPN 5904754).

Among other things, Juda et al. disclose coating a copper layer on a substrate to be bonded with Pd-based foils (col. 2, lines 35-42 and col. 4, lines 55-57). Juda et al. therefore require a copper coating layer.

As discussed previously, the applicant's method of bonding a metallic membrane with a metallic part does not employ an intermediate or intervening layer between the metallic membrane and the metallic part.

With the amendments that have been made to claim 1, it is submitted that claim 1 and its dependent claims distinguish the disclosure of Juda et al. under the provisions of 35 USC §102(b).

Finally, the Examiner rejected claims 16 and 17 under 35 USC §102(b) as being anticipated by Demaray et al. (USPN 5595337).

Demaray et al. disclose a method of bonding two metal objects which are both polished and subjected to heat and pressure for bonding in an inert gas atmosphere (see col. 15, lines 1-25).

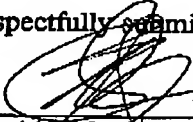
Claim 16 as originally asserted has been cancelled. This obviates the Examiner's rejection under 35 USC §102(b). Original dependent claim 17 has been amended so that it now depends on independent claim 1. It is submitted that amended claim 17, which now depends on claim 1, distinguishes Demaray et al. and other cited references under the provisions of 35 USC §102(b).

New claim 18 has been added. It is dependent on claim 14 and specifies that the hydrogen is at a pressure of 15 psig. This pressure is supported in the specification at page 11, line 8, and page 13, lines 22-23.

The applicant notes that the Examiner concluded that claims 8 and 12 would be allowed if rewritten in independent form. Claims 8 and 12 remain in the application. However, with the amendments that have been made to independent claim 1, it is submitted that dependent claims 8 and 12 and other remaining dependent claims are allowable.

Respectfully submitted,

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